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on a belt, except for its motion. It preserved this shape, color and size, at least until $8^h\ 0^m$, when I was unavoidably called away. The instrument was a 5-inch CLARK refractor, power 200; seeing very good.

WILMINGTON, N. C., 1894, December 28.

(EIGHTEENTH) AWARD OF THE DONOHOE COMET-MEDAL.

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to Mr. EDWARD D. SWIFT, LOWE Observatory, California, for his discovery of an unexpected comet on November 20, 1894.

The Committee on the Comet-Medal,

EDWARD S. HOLDEN,
J. M. SCHAEBERLE,
CHAS. BURCKHALTER.

1895, January 20.

THE IRREGULAR WANING OF THE SOUTH POLAR CAP OF *MARS*.

By W. W. CAMPBELL.

Every observer of *Mars* is well acquainted with the fact that the polar caps in waning do not preserve an exactly circular outline, and are not of equal intensity in all parts. The edges of the caps are sometimes exceedingly irregular, owing both to dark indentations and bright projections. Portions of the caps even become entirely detached, and remain as isolated bright points for several weeks. Moreover, dark regions and excessively bright regions within the caps are common facts of observation. It is certain that the melting of the caps is affected by local conditions; and it is very important to know whether the local conditions at any point are such as to retard or to accelerate the melting.

I have carefully examined the most important recent drawings of the south polar cap, with reference to answering the following questions :

First—Do the excessively bright regions within the cap, the bright projection on the edge of the cap, and the isolated bright points just outside the edge—do these lie at the same places at successive oppositions?

Second—Do they cover light or dark areas on the planet?

Up to 1892 there are very few published drawings of the south polar cap which record these features. SCHIAPARELLI'S maps show several prominent projections from the north polar cap, but none from the south polar cap. Probably many such were noted by him, but his individual sketches are not accessible. His maps and a few of his individual sketches show the south polar cap as essentially triangular in shape.

Mr. N. E. GREEN'S 1877 observations show the polar cap with a very irregular border, but with no striking projections. Isolated bright points are shown in Long. 267°, 282°, 293°, and Lat. — 73°. GREEN named them MITCHEL Mountains, in honor of their discovery in 1845 by MITCHEL of Cincinnati.

Professor YOUNG'S drawing of July 25, 1892, shows an isolated bright point at Long. 210°, Lat. — 65°.

Professor SCHAEBERLE'S drawings of August 24, 27 and 29, 1892, show a long isolated region at the edge on the polar cap, in Long. 310°, Lat. — 75°. His August 7 and 8 drawings show a large projection from the cap at Long. 150°, Lat. — 61°. There was a small projection at Long. 50°, Lat. — 65°, on August 20.

Professor KEELER noted a small projection at Long. 320°, Lat. — 71°, on August 17, 22, 29.

Dr. BARNARD'S drawing of August 21 shows a prominent projection at Long. 320°, Lat. — 69°.

Professor HUSSEY observed a small projection at Long. 335°, Lat. — 65°, on July 23; another small projection at Long. 40°, Lat. — 62°, on August 20; and a large projection at Long. 155°, Lat. — 60°, on August 5, 7, 9, 14.

Mr. CAMPBELL, whose observations extended from July 13 to August 17 and parts of two subsequent evenings, observed a very bright region just inside the polar cap at Long. 330°, Lat. — 65°, on July 17, 18, 19, 20, 26, 27. A similar spot was observed at Long. 35°, Lat. — 65°, on July 17, 18, 19, 20. A very bright spot, partly inside and partly outside the edge of the cap, was observed at Long. 155°, Lat. —63°, on August 7, 8, 9. On August 27 a large elongated bright region, nearly detached from the polar cap, was observed at Long. 325°, Lat. — 75°.

Very few of the 1894 observations have been published, so I shall use only my own. On June 20, 1894, there was a very bright spot on the edge of the polar cap at Long. 150°, Lat. —66°. On June 26 and 28 there was a very bright spot, partly inside and partly outside the cap, at Long. 40°, Lat. —70°. On July 10 there was a large, very bright region on the edge of the polar cap, and projecting somewhat beyond the edge, in Long. 320°, Lat. —71°. At the next presentation of that portion of the planet, August 3, the bright area just mentioned was detached from the main body of the cap. It was growing smaller and smaller on August 7, 8, 14, 15, until it passed out of view on the further side of the planet. When this region was again turned toward the Earth I did not see the bright spot.

Collecting the observations of 1892 and 1894, we find that the observed phenomena were confined to four regions on the planet. They were approximately the following :

Long.	Lat.
40°	— 66°
155	— 62
210	— 60
325	— 70

The three isolated points observed by Mr. GREEN, in 1877, at Long. 267°, 282°, 293°, Lat. —73°, do not coincide with any of the above regions. Mr. GREEN'S beautiful drawings show the center of the bright cap as coincident with the pole of the planet. The observations by BESSEL, HALL, SCHIAPARELLI, and many others, have shown that the center of the polar cap is near Long. 30°, Lat. —84°. If on Mr. GREEN'S drawings we draw the meridians from the true pole instead of from the center of the cap, the longitudes of the three white spots will be increased each by 15° or 20°. They would therefore seem to lie very near the bright spot observed in 1892–94 at Long. 325°.

Let us compare the bright regions observed at the last two oppositions with SCHIAPARELLI'S map of the planet. In the vicinity of the south pole he has only four bright regions, the first three of which he has colored orange, like the ordinary bright parts of the planet, and the fourth he has colored white, like the polar cap. The positions of the four regions are :

Argyre II	Long. 48°	to 70°	Lat. — 64°	to — 72°
Thyle I	140	186	— 55	— 71
Thyle II	194	243	— 56	— 73
Novissima Thyle	315	332	— 68	— 75

A comparison of the two tables will show that the bright spots and projections observed in 1892–94 were located on SCHIAPARELLI'S four bright regions. On those bright regions, or at least on parts of them, the waning of the polar cap is most retarded. On the Earth we are accustomed to see the snow linger longest in the mountainous regions. If we are permitted to reason from analogy—which is by no means certain—the conclusion to be drawn is that SCHIAPARELLI'S four bright regions, at least in part, are elevated or mountainous.

PLANETARY PHENOMENA FOR APRIL, 1895.

By PROFESSOR MALCOLM MCNEILL.

APRIL.

Mercury passed its greatest west elongation late in March and is still a morning star at the beginning of April, rising a little less than an hour before sunrise; so that it is barely possible that it may be seen if the atmospheric conditions are very favorable. It draws nearer to the Sun during the month, and on April 30 does not rise until a few minutes after sunrise, although it does not reach conjunction until May 4.

Venus is an evening star and is in good position for observation. It remains above the horizon about three hours after sunset at the end of the month. It is gradually increasing its apparent distance from the Sun and will continue to do so until July, when it reaches greatest east elongation. Its real distance from the Sun in miles diminishes slightly throughout the month and it passes perihelion on April 30.

Mars is still in the western sky in the evening, but sets earlier than before—at 11^h 22^m on April 30. It is moving rapidly eastward among the stars through the eastern part of *Taurus* and